



Fig. 1- Frequency of accidents by type. Rural areas of East Azerbaijan

## References

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Table 4. Frequency distribution of disabilities due to accident by age and type of accidents in 699,366\* rural inhabitants under coverage of Health Houses in East Azerbaijan

Type of accident	Age groupe (years)		1-4		5-14		15-64		65+		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Road accidents	0	0.0	2	4.3	10	12.7	37	19.9	3	13.6	52	15.3
Burns	5	100.0	35	74.5	23	29.1	20	10.8	1	4.5	84	24.8
Electric shock	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	1	0.3
Poisoning	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	1	0.3
Falls	0	0.0	2	4.3	11	13.9	25	13.4	5	22.7	43	12.7
Drowning	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Suffocation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Due to animals	0	0.0	0	0.0	2	2.5	3	1.6	0	0.0	5	1.5
Due to agricultural equipment	0	0.0	3	6.4	18	22.8	44	23.7	6	27.3	71	20.9
Due to other equipment	0	0.0	0	0.0	1	1.3	15	8.1	0	0.0	16	4.7
Due to military equipment	0	0.0	0	0.0	0	0.0	6	3.2	0	0.0	6	1.8
Collapse of roof or wall	0	0.0	0	0.0	0	0.0	2	1.1	2	9.1	4	1.2
Suicide	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Homicide	0	0.0	0	0.0	0	0.0	2	1.1	0	0.0	2	0.6
Other accidents	0	0.0	5	10.6	13	16.5	31	16.7	5	22.7	54	15.9
Total	5	100	47	100	79	100	186	100	22	100	339	100.0

\* 24, 081 persons in which age or sex was not identified are not included in the table.

Table 5. Frequency distribution of accidents by age and type of accidents in 699,366\* rural inhabitants under coverage of Health Houses in East Azerbaijan

Type of accident	Age groupe (years)		1-4		5-14		15-64		65+		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Road accidents	1	1.5	16	2.2	85	6.1	294	14.0	18	9.0	414	9.3
Burns	41	62.1	520	72.7	437	31.5	522	24.9	34	17.1	1554	34.8
Electric shock	0	0.0	2	0.3	1	0.1	8	0.4	0	0.0	11	0.2
Poisoning	0	0.0	1	0.1	0	0.0	13	0.6	1	0.5	15	0.3
Falls	3	4.5	43	6.0	204	14.7	142	6.8	33	16.6	425	9.5
Drowning	1	1.5	14	2.0	6	0.4	7	0.3	0	0.0	28	0.6
Suffocation	17	25.8	6	0.8	0	0.0	3	0.1	0	0.0	26	0.6
Due to animals	1	1.5	4	0.6	82	5.9	75	3.6	6	3.0	168	3.8
Due to agricultural equipment	0	0.0	13	1.8	105	7.6	334	15.9	42	21.1	494	11.1
Due to other equipment	0	0.0	26	3.6	151	10.9	335	16.0	14	7.0	526	11.8
Due to military equipment	0	0.0	0	0.0	0	0.0	13	0.6	0	0.0	13	0.3
Collapse of roof or wall	0	0.0	2	0.3	10	0.7	25	1.2	5	2.5	42	0.9
Suicide	0	0.0	0	0.0	2	0.1	32	1.5	3	1.5	37	0.8
Homicide	0	0.0	0	0.0	2	0.1	18	0.9	1	0.5	21	0.5
Other accidents	2	3.0	68	9.5	302	21.8	277	13.2	42	21.1	691	15.5
Total	66	100	715	100	1387	100	2098	100	199	100	4465	100.0

\* 24, 081 persons in which age or sex was not identified are not included in the table.

Table 3 - Frequency distribution of deaths due to accidents by sex and type of accident in 699,366\* rural inhabitants under coverage of Health Houses in East Azerbaijan

Type of accident	Male		Female		Total	
	No.	%	No.	%	No.	%
Road accidents	90	42.1	20	18.2	110	34.0
Burns	15	7.0	19	17.3	34	10.5
Electric shock	7	3.3	3	2.7	10	3.1
Poisoning	4	1.9	9	8.2	13	4.0
Falls	14	6.5	12	10.9	26	8.0
Drowning	18	8.4	10	9.1	28	8.6
Suffocation	14	6.5	10	9.1	24	7.4
Due to animals	2	0.9	0	0.0	2	0.6
Due to agricultural equipment	2	0.9	1	0.9	3	0.9
Due to other equipment	1	0.5	1	0.9	2	0.6
Due to military equipment	3	1.4	0	0.0	3	0.9
Collapse of roof or wall	7	3.3	3	2.7	10	3.1
Suicide	20	9.3	14	12.7	34	10.5
Homicide	10	4.7	2	1.8	12	3.7
Other accidents	7	3.3	6	5.5	13	4.0
Total	214	100	110	100	324	100

\* 24, 081 persons in which age or sex was not identified are not included in the table.

Table 2 - Frequency distribution of accidents by sex and type of accidents in 699,366\* rural inhabitants under coverage of Health Houses in East Azerbaijan

Type of accident	Male		Female		Total	
	No.	%	No.	%	No.	%
Road accidents	349	12.7	65	3.8	414	9.3
Burns	698	24.5	855	49.9	1553	34.8
Electric shock	8	0.3	3	0.2	11	0.2
Poisoning	5	0.2	10	0.6	15	0.3
Falls	298	10.8	126	7.4	424	9.5
Drowning	18	0.7	10	0.6	28	0.6
Suffocation	15	0.5	11	0.6	26	0.6
Due to animals	119	4.3	49	2.9	168	3.8
Due to agricultural equipment	382	13.9	112	6.5	494	11.1
Due to other equipment	310	11.3	216	12.6	526	11.8
Due to military equipment	13	0.5	0	0.0	13	0.3
Collapse of roof or wall	28	1.0	14	0.8	42	0.9
Suicide	21	0.8	16	0.9	37	0.8
Homicide	18	0.7	3	0.2	21	0.5
Other accidents	467	17.0	223	13.0	690	15.5
Total	2749	100	1713	100	4462	100

\* 24,081 persons in which age or sex was not identified are not included in the table.

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Table 1- Percent of deaths due to accidents , to all deaths , by age and sex in 699 , 366\* rural inhabitants under coverage of health Houses in East Azerbaijan.

Age group (years)	Male			Female			Total		
	Accident deaths	All deaths	%	Accident deaths	All deaths	%	Accident deaths	All deaths	%
<1	11	279	3.9	11	270	4.1	22	549	4.0
1 - 4	23	66	34.8	22	50	44.0	45	116	38.8
5 - 14	30	55	54.5	19	52	36.5	49	107	45.8
15 - 64	132	578	22.8	46	400	11.5	178	978	18.2
65 +	18	743	2.4	12	546	2.2	30	1289	2.3
Total	214	1721	12.4	110	1318	8.3	324**	3039	10.6

\* 24,081 persons in which age or sex was not identified are not included in the table .

\*\* 2 cases of accident death not included as the cause was not known.

accidents and injuries are as follows :

Road traffic accidents (2.24%) , Fall (1.99%) , War (1.55%) , Violence (1.28%) , Self-inflicted injuries (1.22%) , Drowning (1.10%) , Fires (0.94%) , Poisoning (0.43%). We add them together , it becomes 10.75%.

It is seen that if we take them together , accidents and injuries , even now , are the most important causes of years of healthy life lost (DALYs) in developing countries.

But why so little attention is given to the research on these important health problems? There are many reasons for that. These are tens of different types of health problems , not one ; any intention needs collaboration of many sectors including the people themselves; they occur mainly in underprivileged segment of the population , they need long term strategies to prevent them , and many other factors.

This study was to identify the most important accidents and injuries in these communities. These were burns , accidents due to agricultural and non-agricultural equipments , falls , road traffic accidents , suffocation , suicide and drowning.

The next steps to be recommended are as follows :

- 1- Repeat with the same type of population , based on investigations in other parts of the country to identify accidents and injuries of importance in those areas.
- 2- In-depth epidemiological studies , in each area , on risk factors and determinants of each one of these important health problems ( at the present time one study of this kind on suicide is being carried out in the country ) .
- 3- Detailed investigation of accidental events of great importance e.g. plane crash , train collisions etc , to recognise the causes and prevent similar events.

It is hoped that , taking into consideration that accidents and injuries are taking great tolls of life and of health expenditures , governments in our region pay more attention to the need for more research aiming at intervention for prevention of accidents and injuries.

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to agricultural equipments and falls.

Accident deaths in male were mainly due to road accidents and homicide , while in female , the main causes were burns and poisoning. Regarding disabilities , male disabilities were mostly due to road accidents and agricultural equipments , while in female, they were mostly caused by burns.

Table 5 shows distribution of accidents by age and type of accidents. It clearly shows that in each age group some accidents and injuries are more prevalent than the others. In infants , almost all accidents are either burns or suffocation. In age group 1-4 , still burns are the cause of almost 3/4 of all accidents.

The hours of occurrence are different for different types but on the whole, most cases of accidents occur in the morning especially between 8 and 12.

Various types of accidents have different seasonal distribution. Road accidents , falls and accidents due to agricultural equipments occur more in the summer , while suicides are more in spring and suffocation (mostly in infants), in the winter.

## **Discussion**

This is the first population based study of accidents and injuries in Iran. It shows the magnitude of the problem and its importance as the causes of death and disability. Some other studies had been carried out in this province on the causes of death in under 5 age group (1) , health indices (2) and also some accident cases seen in two hospitals in Tabriz (3) , but none of them were able to show the importance of the problem of accidents and injuries as the causes of morbidity , disability and mortality.

In the most recent publication of WHO in 1996 (4) it is mentioned that " Today , injuries account for about one in every seven years of healthy life lost (DALYs) world wide and by the year 2020 they are likely to account for one in every five ".

In the same document , the most important cause of DALYs in 1990 in developing countries is lower respiratory infections which accounts for 9.07% of the burden and ischemic heart diseases accounts for 2.52% while the figures for



## Materials and methods

The study was carried out in villages covered by Health Houses. These are the first point of contact of the rural people with the Health Care Delivery System, staffed by two village health workers.

Each Health House is covering 1000 to 2500 population. Altogether, the population under the coverage in this study was 723447 persons.

All accidents and injuries (unintentional or intentional), referred to Health Houses, were listed for the year 1371 (21 March 1992 to 20 March 1993) from the record books of Health Houses all over the province.

The household of each case was visited by especially trained staff to complete forms for details of the accidents. The completed forms were checked at the district level by a supervisor trained for this job. All the forms were sent to Tabriz (capital of the province) and after being rechecked, were sent to the Institute of Public Health Research in Tehran for data analysis.

## Results

Table 1 shows the percent of deaths due to accidents and injuries to all deaths in the population under study by age and sex. It shows that on the whole 10.6% of all deaths are due to these causes but in the age group 5-64, they are the most important causes of death (25.5% in male and 14.4% in female).

During the period of study, there had been 4475 cases of accidents and injuries (incidence 619/100,000), 326 cases of death (45/100,000) and 347 cases of permanent disability (48/100,000).

Fig 1 shows the frequency of accidents and injuries by type. It shows that the most common types of accidents in this population are burns, accidents due to agricultural and other equipments and road traffic accidents.

Table 2 shows differences of accident types between male and female. In male, road accidents and falls are very important, while in female, burns are more common. These differences could easily be explained by difference in the type of daily activity of male and female in villages.

Table 3 shows the distribution of deaths due to accidents and injuries by sex and type of accidents. Road accidents are the most common type followed by suicides and burns.

Table 4 shows the distribution of permanent disability by age and type of accidents. The most common causes of these disabilities are burns, accidents due

# ACCIDENTS AND INJURIES IN RURAL AREAS OF EAST AZERBAIJAN PROVINCE , NORTHWEST OF IRAN

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**Key words:** *Accidents , mortality , disability , Iran*

## Abstract

A study has been carried out in 1992 to determine the incidence , mortality and disability due to accidents and injuries in more than seven hundred thousand population under the coverage of Health Houses in East Azerbaijan province , northwest of Iran.

This study showed that burns , falls , road accidents and those related to agricultural and other equipments are the main types of accidents.

Road accidents , burns , suicides and suffocations were the main causes of accident deaths.

Both the types and the end-results of accidents were different in various age groups and between male and female. Recommendations are presented for further studies and for reducing the health burden of these problems.

## Introduction

Accidents and injuries are so important as causes of death , disability, hospital expenses and economic damages to the country and psychological and emotional damages to families that for the World Health Day of 1992 , World Health Organization (WHO) selected them as the main subject for discussion and research.

Encouraged by the decision of WHO , a preliminary epidemiological study was carried out on accidents and death and disability in the province of East Azerbaijan, northwest of Iran, with the financial support of WHO /EMRO. The present paper is the report of some of the findings of this study.

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